

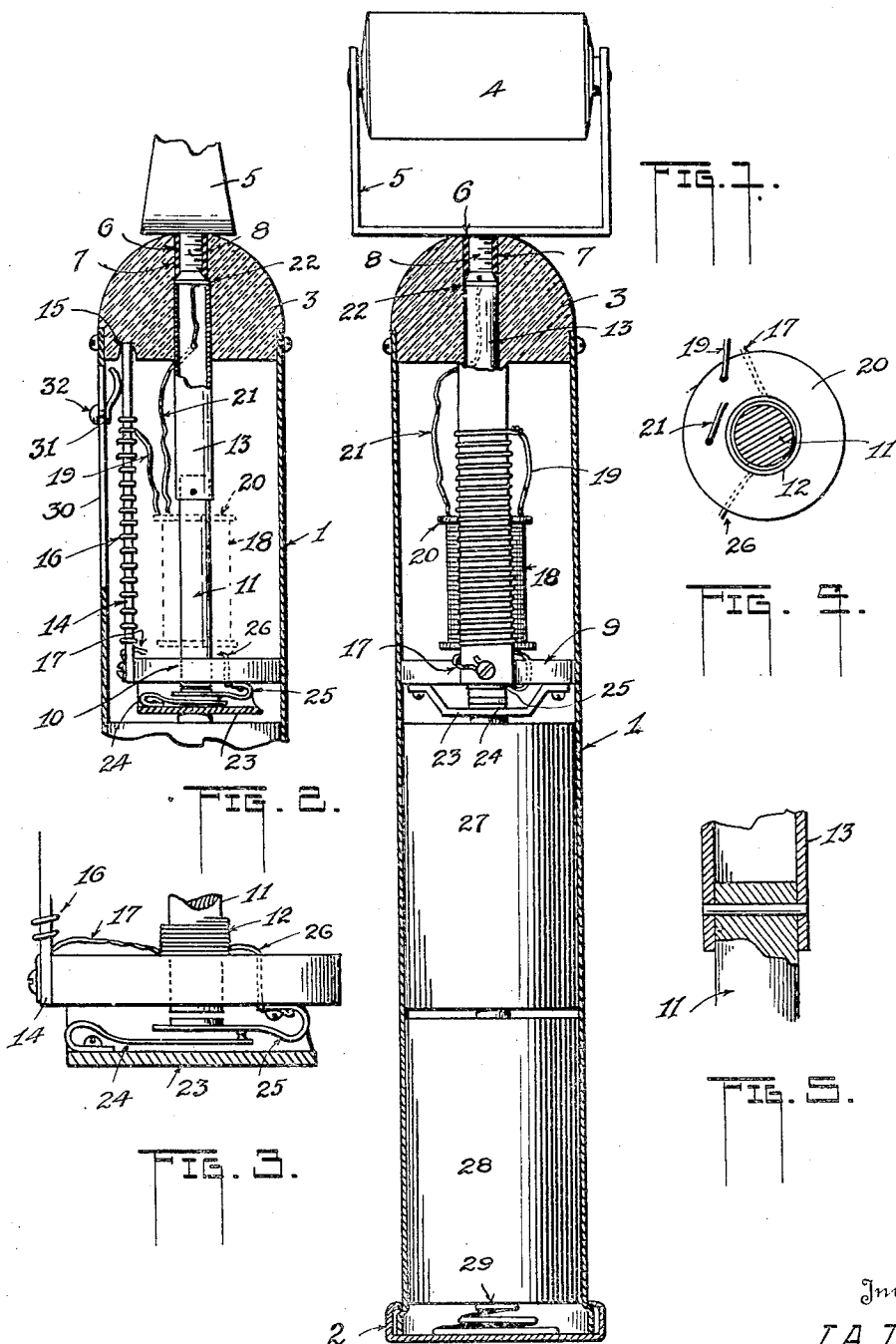
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DEVICE FOR ELECTRIC THERAPEUTIC TREATMENT

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DEVICE FOR ELECTRIC THERAPEUTIC TREATMENT.

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This invention pertains to portable devices for administering electric therapeutic treatment. More particularly the invention has to do with a containing case, usually of metal, to be held in the hand of the patient, said case forming one electrode while a metal roller or other portion mounted thereon forms a second electrode for application to the portions of the body of the patient receiving treatment, it being understood that the device is to be used on the operator's own person.

The object of the invention is to furnish a treatment device of the class named that will be staunch and rigid with no parts likely to give trouble, and in particular provide means built into the device for nicely regulating the output of the treatment current without sudden spasmodic actions and accompanying discomfort to the patient.

The invention also relates to certain details of construction to be pointed out herein aided by the accompanying drawing wherein,

Figure 1 is a longitudinal section of the containing case of the device showing the simple sturdy arrangement of parts entering into the invention.

Figure 2 is a similar illustration of part of the case in which the parts shown in Figure 1 are viewed from a different position but wherein certain of the windings of the device have been eliminated to better show construction.

Figure 3 shows certain parts in elevation and greatly enlarged.

Figure 4 is a plan of a secondary-coil spool and a metal core and primary windings greatly enlarged, and

Figure 5 is an enlarged detail in section of parts shown in Figure 2.

A metal containing case for the parts of the device is shown at 1, the same being provided with a removable cap or closure 2 at what may be termed its lower end, the upper end of the casing having a closure 3 of insulating material surmounted in this instance by a metal roller 4 journaled in a yoke 5 provided with a threaded sleeve 6 entering a bore 7 in said closure 3, the sleeve receiving a securing screw 8 arranged so as to secure the said yoke 5 with respect to said closure, but without invention herein, the said bore 7 extending through the said closure to communicate with the containing space of the casing 1.

A disc or plate 9 of insulating material is bored at 10 to receive a soft iron core 11 in a driving fit, said core having a winding of wire 12 thereon, Figures 3 and 4, said wire being properly insulated from said core in any usual manner and itself enameled or otherwise protected to insulate is convolutions from one another and forming the primary coil of the electric circuit to be used, and in the present instance an insulating tubular member 13 surmounts the core 11 and is adapted to be held by friction at its free end within the bore 7 of the closure 3.

A resistance element composed of a strip 14 of insulating material is secured at one end to the edge of the disc or plate 9, being erected to parallel the wall of the casing 1, the other end of the strip being let into a conical recess 15 in the closure 3 exposed within said casing. The tubular member 13 is designed to closely abut the screw 8, the strip 14 being of such length that it will snugly bottom in the recess 15 when said sleeve or tubular member 13 is in abutment, thus rigidly holding the strip. Resistance wire 16 is wound on the strip, one end thereof being connected with one end of the primary coil 12 through the lead 17, Figures 1 and 3, the other end of said resistance wire having connection with one end of a secondary coil 18 through a lead 19. Said secondary coil is wound upon a spool 20 enclosing the primary coil 12 and the other end 21 thereof is carried through the wall of the tubular member 13 to a contact 22, for example, interposed between the said member and the screw 8, electrical connection being thus made to the roller 4.

Beneath and attached to the disc or plate 9 is a metal carrier 23 for a contact spring 24 and attached to the said disc is an armature spring 25 connected by a lead 26 with the remaining end of the primary coil 12, the said carrier 23 being in contact with the positive pole of a battery cell 27 whose case may have contact with the casing 1 as the negative pole, or with the positive pole of a companion cell 28 which has electrical connection with said casing through a spring 29 in the cap or closure 2 in the usual way.

The casing 1 has a slot 30 opposite the resistance winding 16 of the strip 14 and a contact spring 31 has sliding engagement with both the winding and said casing and is controlled by a button 32. This arrangement, of course, completes the circuit to said

casing. The connection with said resistance wire is such that the greatest resistance to current flow for treatment purposes is where the spring 31 is nearest the upper end of the wire and nearest the closure 3. And as the spring is moved downwardly or toward the disc 9 the resistance is gradually diminished with a consequent stronger flow of current. Thus with a proper resistance in circuit the patient is afforded a very positive means for varying to a close degree the treatment desired.

In my structure as provided the only moving part is the contact spring 31. The resistance element is rigidly supported when the parts are assembled and there is nothing to get out of order or give trouble in any way, the whole being strong and sturdy throughout and of simple appointment.

In assembling the parts of the device the closure 3 receives into it the tubular member 13 in a snug driving fit whereby to retain the entire described structure firmly with respect to said closure and in this act the end of the strip 14 is made to seat immovably in the socket 15 firmly holding it from lateral movement resisting the pressure of the contact spring 31.

I claim:

1. In an electric therapeutic treatment device, the combination with a metal casing forming an electrode to be held in the hand, an electric current source therein and means connected therewith for producing a faradic current electrically connected with the casing, and a second electrode also connected electrically with such means, of a resistance element erected within the casing substantially paralleling a straight surface of the wall of the same and connected at its ends in circuit with the said means, there being a slot in the casing paralleling the element, and a spring contact member slidable in said slot and slidably engaging the said element.

2. In an electric therapeutic treatment device, the combination with a metal casing forming an electrode to be held in the hand, an electric current source therein connected at one side with the said casing and means connected with such current source at its other side for producing a faradic current, and a second electrode connected with said means, of an insulating member erected in said casing substantially paralleling a straight surface of the same, there being a

slot in said casing opposite and paralleling said member, a winding of resistance wire on said member electrically connected at its ends with said means, and means slidable in said slot in electrical contact with said casing and slidable across the windings of said resistance wire.

3. A device of the class described including in combination with a casing and a member secured thereto provided with a recess and a bore, a support and a part carried by the support adapted to snugly fit in said bore securing the support and member relatively, of a strip of insulating material secured at one end on the support and at its other end adapted to seat in said recess, a resistance wire wound upon the strip, and a contact member slidably engaging both the wire and the casing, said wire being included in a primary electric circuit of which the casing is a part.

4. A device of the class described including in combination with a casing, a primary electric circuit, an interrupter, a battery connected with said casing, and a support for said mechanism, of a strip of insulating material secured at one end to the support, means to engage and hold the other end of said strip, a resistance wire wound upon the strip included in said primary circuit, and a contact member slidable upon the wire and said casing.

5. In a device of the class described, a containing casing constituting an electrode, a member at one end of the casing constituting a second electrode, an insulating member interposed between the casing and said second electrode and having a recess, a source of electric current connected to the casing, a primary coil and its core, an interrupter connected between the current source and primary coil, and a support therefor, an insulating strip fixed at one end upon the support paralleling the wall of the casing and at its other end seated in the recess of the said insulating member, a resistance wire carried by the strip connected with the primary coil, a sliding contact carried on the casing adjustable along and upon the said resistance wire, and a secondary coil adjacent the primary coil connected at one end with the same and connected at its other end with the said second electrode.

In testimony whereof I affix my signature.

JOSEPH A. LEV.